

**PATENT APPLICATION**  
**ATTORNEY DOCKET NO.: KCX-707**

**UNITED STATES PATENT APPLICATION**  
**OF**

**KRISTI BRYANT**

**GLORY CEMAN**

**MARY L. MC DANIEL**

**MICHELLE SRODA**

**SUSAN WEYENBERG**

**KATHERINE C. WHEELER**

**AND**

**TERESA ZANDER**

**FOR**

**SYSTEM AND METHOD FOR DISGUIISING**  
**PERSONAL CARE PRODUCTS**

## SYSTEM AND METHOD FOR DISGUIISING PERSONAL CARE PRODUCTS

### BACKGROUND OF THE INVENTION

Personal care products are designed to intercept and capture body exudates, such as urine and menses. Examples of commonly available personal care products include adult care products, such as incontinence pants and pads; child care products, such as diapers and training pants; and feminine care products, such as sanitary pads, panty liners, inter-labial absorbent articles, and tampons. A user wears the product either in place of an undergarment, as with child care products and some adult care products, or beneath the undergarment, as with feminine care products and other adult care products. The user generally wears the personal care product a single time and discards the product after a relatively short period of use.

By their nature, personal care products are individual and private items. Consumers prefer products that are comfortable, inconspicuous, and invisible from outside of the undergarment or clothing. Ideally, the personal care product should fully cover the user's pudendum and possess sufficient fluid capacity, yet remain essentially non-visible from the outside of the undergarment. In practice, fully covering the user's pudendum and possessing sufficient fluid capacity may result in an absorbent article that is less comfortable, more conspicuous, and more visible from the outside of the undergarment.

Historically, personal care products have been white and non-descript. This appearance conveyed a sense of a clean, hygienic, and sanitary product. In addition, the white, non-descript color permitted the personal care product to blend easily with undergarments that were also predominantly white. Currently, however, fashion trends have moved in the direction of colored and printed undergarments in a variety of styles. As a result, white, non-descript personal care products now tend to be more conspicuous and more visible when worn with colored and printed undergarments.

In addition, many consumers infer various characteristics of a personal care product based solely on the appearance of the product. For example, consumers may associate plain, white, non-descript products as being less

comfortable, cheaper, and of lower quality than identical products having a contemporary, aesthetic design, print, or color. This is especially true when the white, non-descript products are sold directly next to substantially identical products having a contemporary, aesthetic design, print, or color.

5 Experience has shown that the look and feel of personal care products can also create or increase apprehension among users. For example, people suffering from incontinence often wear absorbent diapers or pads in lieu of or beneath their undergarments to capture and retain body exudates. The absorbent articles tend to look and feel slightly different than the user's normal  
10 undergarment. This difference in look and feel creates a constant reminder to the user of the incontinence problem, thus creating a constant source of apprehension with the user.

Many conventional personal care products include side flaps, wings, or tabs to help reduce leakage by providing additional lateral coverage to the crotch  
15 of the undergarment. The side flaps, wings, or tabs extend beyond the undergarment, making these extensions more visible and conspicuous. Some manufacturers have made the extensions transparent or translucent in an effort to reduce the visibility and conspicuousness of the extensions. However, transparent or translucent materials tend to be stiff, shiny, and lack absorbency.  
20 As a result, transparent or translucent extensions tend to be less comfortable, just as visible and conspicuous, and lack the desirable absorbent capacity.

Therefore, a need exists for an improved personal care product that looks and feels like a typical undergarment. Moreover, a need exists for an improved personal care product that mimics the current colors, prints, and styles of  
25 undergarments. Lastly, a need exists for an improved personal care product having extensions that remain comfortable, inconspicuous, and absorbent.

### **SUMMARY OF THE INVENTION**

Objects and advantages of the invention are set forth below in the  
30 following description, or may be obvious from the description, or may be learned through practice of the invention.

The present invention relates to a system for disguising the use of a

personal care product. The system generally includes an undergarment, a personal care product designed to be placed at least partially within the undergarment, and a pattern defined on the personal care product to match the undergarment. The undergarment has a design of outwardly visible characteristics of any combination of non-white colors, shapes, and designs. The personal care product includes an absorbent material within an exterior layer that includes a top sheet and a back sheet. The pattern is defined on at least one of the top sheet and back sheet so that when the personal care product is placed in the undergarment, the pattern substantially matches the design on the undergarment and disguises the visible lines of distinction between the personal care product and the undergarment.

The pattern may be defined on the personal care product using any conventional technique, including printing or embossing, on either side of the exterior layer. Depending on the embodiment, the pattern may be any combination of geometric shapes, non-geometric shapes, repeating shapes, and non-repeating shapes. In addition, the pattern may be defined on all or only a part of the top sheet, back sheet, or a combination of the two. In a particular embodiment, the absorbent material includes laterally extending wings that fold around a crotch region of the undergarment, and the pattern is defined on the wings. In another particular embodiment, the top sheet includes a longitudinal strip with the pattern defined along opposite lateral sides of the longitudinal strip.

The present invention also includes a method for disguising the use of personal care products placed in a user's undergarment. The method includes selecting an undergarment having a design of outwardly visible characteristics of any combination of non-white colors, shapes, and designs; defining a pattern that substantially matches the visible design of the undergarment on at least one outwardly visible surface of a personal care product intended to be placed within the undergarment; and placing the personal care product in the undergarment such that the pattern substantially aligns with and matches the undergarment design. This method disguises the visible lines of distinction between the personal care product and the undergarment.

The method may also include defining the pattern on surfaces of the

personal care product that are visible to the user in use of the personal care product. Alternately, the method may include defining the pattern on surfaces of the personal care product that are outwardly visible when the undergarment and personal care product are worn by the user. Particular embodiments may define the pattern substantially over a top sheet, a back sheet, or a combination of a top sheet and a back sheet. Moreover, the pattern may be defined on the personal care product by embossing or printing.

The present invention also includes a personal care product that is placed in an undergarment that has a design of outwardly visible characteristics of any combination of non-white colors, shapes, and designs. The personal care product includes an exterior layer with a pattern defined on at least a portion of the exterior layer. The exterior layer includes a top sheet and a back sheet. The pattern substantially matches the undergarment design to disguise visible lines of distinction between the personal care product and the undergarment.

The pattern may include any combination of geometric shapes, non-geometric shapes, repeating shapes, and non-repeating shapes. Furthermore, the pattern may be printed or embossed on part or substantially all of the top sheet, back sheet, or combination of the two.

Particular embodiments may include a top sheet having an un-patterned longitudinal strip with the pattern defined along opposite lateral sides of the longitudinal strip. In addition, the pattern may be on either side of the top sheet. An alternate embodiment may include laterally extending wings that fold around a crotch region of the undergarment with the pattern defined on the wings.

Those of ordinary skill in the art will better appreciate the features and aspects of such embodiments, and others, upon review of the specification.

### **BRIEF DESCRIPTION OF THE FIGURES**

A full and enabling disclosure of the present invention, including the best mode thereof to one skilled in the art, is set forth more particularly in the remainder of the specification, including reference to the accompanying figures, in which:

Figure 1 is a perspective view of a partial cut-away of an embodiment of

the present invention;

Figure 2a is a top plan view of an embodiment of the present invention;

Figure 2b is a bottom plan view of an embodiment of the present invention;

5        Figure 3 is a top plan view of an alternate embodiment of the present invention;

Figure 4 is a top plan view of an alternate embodiment of the present invention;

10       Figure 5 is a top plan view of an alternate embodiment of the present invention;

Figure 6a is a top plan view of an alternate embodiment of the present invention; and

Figure 6b is a bottom plan view of an alternate embodiment of the present invention.

15

### **DETAILED DESCRIPTION OF THE INVENTION**

Reference will now be made in detail to present embodiments of the invention, one or more examples of which are illustrated in the accompanying drawings. Each example is provided by way of explanation of the invention, not  
20       limitation of the invention. In fact, it will be apparent to those skilled in the art that modifications and variations can be made in the present invention without departing from the scope or spirit thereof. For instance, features illustrated or described as part of one embodiment may be used on another embodiment to yield a still further embodiment. Thus, it is intended that the present invention  
25       covers such modifications and variations as come within the scope of the appended claims and their equivalents.

30       The present invention relates to a system and method for disguising a personal care product to match a design on an undergarment. Personal care products generally include adult care products, such as incontinence pants and pads; child care products, such as diapers and training pants; and feminine care products, such as sanitary pads, panty liners, inter-labial absorbent articles, and tampons. The accompanying figures depict the personal care product as a

feminine care product, specifically a sanitary napkin having a conventional elongated oval shape. However, it should be understood by one of ordinary skill in the art that the accompanying figures merely provide an illustration of particular embodiments within the scope of the present invention without limiting the scope of the present invention or claims. As such, alternate embodiments within the scope of the present invention and claims may comprise adult care products, child care products, or other feminine care products. Furthermore, the personal care product may have other shapes, sizes, and thicknesses, depending on the particular application and embodiment.

The personal care product **10** has a degree of absorbency for the intended use of the product. The absorbency may be provided by any one or combination of materials. Referring to Figures 1, 2a, and 2b, in a particular embodiment, the personal care product **10** generally includes an absorbent material **20**, an exterior layer **30** covering the absorbent material **20**, and a pattern **40** on the exterior layer **30**. When properly positioned, body exudates pass through the exterior layer **30** for capture by the absorbent material **20**. The pattern **40** disguises the personal care product **10** to match the design **12** on the undergarment **14** and/or convey a sense of quality and/or comfort to the user, as described in greater detail below.

The absorbent material **20** provides the operative material for collecting and retaining body fluids or exudates while remaining light and dry feeling during use. The absorbent material **20** should be soft, not stiff, and should retain its shape, even when wet. The absorbent material **20** may attach to portions of the exterior layer **30** to hold the absorbent material **20** in place and protect the absorbent material **20** from abrasion.

The absorbent material **20** may be any structure or combination of components which are generally compressible, conformable, non-irritating to the user's skin, and capable of absorbing and retaining bodily fluids. For example, the absorbent material **20** may include an absorbent web of cellulose fibers, such as wood pulp fibers, other natural fibers, synthetic fibers, woven or non-woven sheets, scrim netting or other stabilizing structures, superabsorbent materials, binder materials, surfactants, selected hydrophobic and hydrophilic materials,

pigments, lotions, and odor control agents, as well as combinations thereof. In one embodiment, the absorbent material **20** is a matrix of cellulose fluff coated with superabsorbent hydrogel-forming particles. The absorbent material **20** may be formed using various methods and techniques known in the art, such as dry-forming, air forming, wet-forming, and foam-forming, as well as combinations thereof.

Superabsorbent materials are well known in the art and may be selected from natural, synthetic, and modified natural polymers and materials. The absorbent material **20** generally includes superabsorbent material, with the superabsorbent material ranging from about 0-90 percent by weight of the absorbent material **20**, depending on the application and desired absorbency. For example, the total absorbency may be about 200-900 grams of .9% by weight saline for infant care products; whereas, the total absorbency for adult care products may be about 400-2000 grams of .9% by weight saline. For feminine care products, the total absorbency may be within the range of about 7-50 grams of menstrual fluid.

It should be appreciated that the separate layer of absorbent material **20** is not a requirement of the invention, and that absorbent capacity may be otherwise provided.

The exterior layer **30** provides a protective barrier for the absorbent material **20**. The exterior layer **30** generally includes a liquid permeable top sheet **32** and a liquid impermeable back sheet **34**, with each having an absorbent side and a non-absorbent side.

The top sheet **32** provides the personal care product **10** with a liquid permeable surface that contacts the user's skin. The top sheet **32** should provide a comfortable, conforming interface with the user's skin by being flexible, compliant, and non-irritating to the skin. The top sheet **32** should also transfer fluids quickly and remain dry and clean during use. In addition to being liquid permeable, the top sheet **32** may also include apertures **36** for freely passing exudates with minimal absorption. The top sheet **32** may be coated with a surfactant to further enhance permeability to the absorbent material **20** and reduce absorption by the top sheet **32**. The top sheet **32** may be any woven or



non-woven material which passes body fluids yet remains comfortable to the user. Examples of suitable top sheet materials include rayon, bonded carded webs of polyester, polypropylene, polyethylene, nylon, or other heat-bondable fibers, polyolefins, copolymers of polypropylene and polyethylene, linear low-  
5 density polyethylene, and aliphatic esters such as polylactic acid. A specific example of a suitable top sheet material is a bonded carded web made of polypropylene and polyethylene such as that used as cover stock for KOTEX® panty liners and obtainable from Sandler Corporation, Germany.

The back sheet **34** provides the personal care product **10** with a liquid  
10 impermeable and possibly vapor permeable surface. As such, the back sheet **34** prevents exudates from completely penetrating the personal care product **10** and soiling the user's undergarment **14** or outer clothing. Ideally, the back sheet **34** is soft, flexible, quiet, breathable, and may include some absorbent capacity on the side facing the absorbent material **20**. The garment-facing side of the back sheet  
15 **34** may include adhesive strips or other suitable fastening device (not shown) for adhering the personal care product **10** to the user's undergarment **14**. The back sheet **34** may be any suitable material known in the art, such as embossed and non-embossed thermoplastic films, laminated tissue, and polyethylene films. In one embodiment, the back sheet **34** includes a non-woven material laminated to  
20 a microporous film.

The pattern **40** on the exterior layer **30** provides several possible functions. As previously discussed in the Background of the Invention, users prefer personal care products that are inconspicuous, comfortable, and of high quality. The accompanying figures illustrate various embodiments of the present  
25 invention that incorporate a contemporary, aesthetic design, print, or color into the personal care product **10** to disguise the product **10** to match the design **12** on the undergarment **14** and/or convey a sense of comfort and/or quality to the user.

The pattern **40** may be as simple as a solid non-white color, such as  
30 black, natural, green, red, or pink. Other possible patterns **40** include repeating or random geometric shapes, flowers, paisley, or other figures. In this manner, the selected pattern **40** on the exterior layer **30** disguises the personal care

product **10** to match or blend in with the design **12** of the undergarment **14**. When placed in the undergarment, the pattern disguises any visible lines of distinction between the personal care product and the undergarment. As a result, the personal care product **10** is less visible from outside the undergarment **14** and less conspicuous to the user. In addition, the selected pattern **40** conveys a sense of comfort and/or quality to the user, especially when compared to a standard white product.

Referring again to Figure 1, the pattern **40** on the personal care product **10** is a solid non-white color **42**. The solid non-white color pattern **42** may provide the additional capability of concealing additives or exudates in the product **10**. For example, a solid shade of green permits the manufacturer to add aloe or vitamin E to the top sheet **32** or absorbent material **20** without noticeably discoloring the exterior layer **30**. Similarly, a solid shade of yellow, red, or brown may prevent exudates from noticeably discoloring the top sheet **32**. Conversely, the manufacturer may select a solid color pattern **42** that noticeably discolors when exposed to exudates to indicate to the user that the product **10** is soiled and should be replaced.

Figures 2a and 2b provide top and bottom plan views, respectively, of an embodiment from inside and outside the undergarment **14**. As shown in Figure 2a, the top sheet **32** may include a longitudinal strip **44** with a random pattern **46** on opposite sides of the longitudinal strip **44**. The random pattern **46** matches the design **12** on the undergarment **14** and disguises any visible lines of distinction between the personal care product and the undergarment. Figure 2b illustrates the random pattern **46** on the back sheet **34**. In this embodiment, the longitudinal strip **44** remains generally white and color-free to convey cleanliness to the user in the pudendal region. However, the random pattern **46** disguises those portions of the top sheet **32** and back sheet **34** that are most likely seen outside the undergarment **14**. Thus, the random pattern **46** reduces the visibility and conspicuousness of the product **10** while also conveying cleanliness and comfort to the user.

Figure 3 illustrates an embodiment having a repeating geometric pattern **48** on the top sheet **32**. As shown, the geometric pattern **48** comprises generally

parallel lines along the length of the top sheet **32**, although other geometric shapes such as curves, arcs, and polygons are within the scope of this embodiment. In addition to disguising the product **10** to match the undergarment **14**, the geometric pattern **48** may also provide the user with a convenient  
5 reference for properly positioning the product **10** radially and axially in the crotch of the undergarment **14**.

Figure 4 illustrates an embodiment that combines a repeating floral pattern **50** with a solid pattern **52**. As before, the floral pattern **50** on the top sheet **32** matches the design **12** on the undergarment **14**, disguising the personal care  
10 product **10** to blend in with the background of the undergarment **14**. The solid pattern **52** around the periphery of the top sheet **32** may create a visual illusion of a structural border around the product **10**. This visual allusion may provide additional comfort to the user by creating a sense of additional protection against leakage.

Figure 5 illustrates a randomly repeating pattern **54** in the portion of the top sheet **32** most likely to receive body exudates. The randomly repeating pattern **54** may hide or obscure any discoloration caused by additives or exudates. Alternately, the randomly repeating pattern **54** may highlight or signal the presence of exudates on the top sheet **32** to indicate a soiled product **10** to  
20 the user.

Figures 6a and 6b provide top and bottom plan views, respectively, of an alternate embodiment from inside and outside the undergarment **14**. In this embodiment, the personal care product **10** includes side flaps, wings, or tabs **56** that extend beyond the undergarment **14** to provide additional lateral coverage to  
25 the crotch **16** of the undergarment **14**. The tabs **56** may include adhesive **58** to securely attach the tabs **56** to each other and/or the outside of the undergarment **14**.

As shown in Figure 6a, the tabs **56** may include a pattern **60** that matches the design **12** on the undergarment **14**; however the top sheet **32** may remain  
30 essentially white to match the white crotch **16** of the undergarment **14**. Viewing the embodiment from outside the undergarment **14**, as shown in Figure 6b, the portions of the back sheet **34** that are visible from outside the undergarment **14**

may also include the pattern **60**. In this embodiment, the top sheet **32** blends into the background of the generally white crotch **16** of the undergarment **14** while the tabs **56** and visible portions of the back sheet **34** blend into the background of the outside of the undergarment **14**.

5           It should be understood by one of ordinary skill in the art that for each embodiment illustrated in the figures the respective pattern matches or complements the particular design on the undergarment. The particular pattern may be applied to the absorbent side or non-absorbent side the exterior layer, as long as the pattern remains generally visible. Moreover, the pattern may cover  
10           some or all of the exterior layer or parts thereof. For example, the pattern may exist on some or all of the top sheet, back sheet, and or tabs. Methods of applying the pattern to the exterior layer include printing, embossing, or any other method known in the art.

15           It should be appreciated by those skilled in the art that modifications and variations can be made to the embodiments of the invention set forth herein without departing from the scope and spirit of the invention as set forth in the appended claims and their equivalents.